If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match.
The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.
Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.

C-A OPERATIONS PROCEDURES MANUAL

8.7.1 C-A High Level RF System Start-UP

Text Pages 2 through 4

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

Approved: ***Signature on File*** _____
Collider-Accelerator Department Chairman Date

A. Zaltsman

8.7.1 C-A High Level RF System Start-Up

1. Purpose

The purpose is to provide instructions to MCR Operators and System Specialists on how to turn-on the C-A HIGH LEVEL RF (HLRF) System in preparation for AGS beam operation. The HLRF system includes 10 RF stations. Each station consists of: accelerating cavity, POWER AMPLIFIER (PA), FEEDBACK POWER AMPLIFIER (FBPA), anode PS, screen PS, grid PS, FB anode PS, FB screen PS, MAIN TUNING PS (MTS) and FBPA tuning PS.

2. Responsibilities

System Specialists, with the assistance of MCR Operators, are responsible for executing this procedure.

3. Prerequisites

3.1 Turn on the UPS power for Bldg. 929 and the B-18, D-18, and J-18 houses.

3.2 All power PA, cavity, Variac rack and anode PS doors must be closed.

3.3 Water systems for the PA's, cavities, and MTS shall be turned-on.

3.4 Vacuum in the superperiods containing RF cavities shall be better than 6×10^{-7} Torr.

3.5 Put MCR/RFB (RF Building) control switches in both MCR and the RF control center in the RFB control state.

3.6 Qualified and trained System Specialists and MCR Operators.

4. Precautions

4.1 A public address announcement shall be made to notify personnel in the AGS ring that the C-A HLRF system will be energized.

5. Procedure

Note:
Prior to the execution of this procedure, RF System Specialists shall inspect all PA's and cavities and verify that vacuum chambers, adjacent to the cavities, are hard grounded.

5.1 MCR key release:

5.1.1 MCR Operator shall unlock "MASTER KIRK KEY" exchange (keys # MCR-1 and MCR-2) in Bldg. 929 second floor, thereby releasing master keys for:

5.1.1.1 FILAMENTS 480V PANEL (KEY # FIL-M);
5.1.1.2 208V DISTRIBUTION PANEL (KEY # 208-M);
5.1.1.3 13.8kV MASTER BREAKER (KEY # 138-M);
5.1.1.4 115V VARIAC RACK POWER;
5.1.1.5 480V MASTER TUNING PANEL (KEY # TUN-M).

5.2 Auxiliary Power Turn-On (Bldg. 929)

5.2.1 Close breaker for Variac rack power main and individual stations on panels 5202 and 5205.

5.2.2 Close breaker for 208V master and individual breakers for 208V on the panel # 5202.

5.2.2.1 Energize 115V and 208V breakers in the plate PS. Turn-on AC and DC breakers on the front of the grid and screen PS's in the plate PS.

5.2.3 FILAMENTS 480V main breaker must be closed on the panel # 5202.

5.2.4 In the RF CONTROL CENTER (RFCC) switch:

5.2.4.1 The REDY panels (R5232 and R5233) into AUTO position;
5.2.4.2 The GLOBAL/STATION switch into the STATION position;

5.2.4.3 The "RFB" push button on the REDY panel in the MCR will be illuminated,

5.2.5 Energize "STBY" buttons on the individual REDY panels. "STBY", "AUX ON" and "FB AUX ON" lights should be lit and the "LO LIMIT" lights will go off. In approximately 5 minutes the "HI LIMIT" and "IN PROCESS" lights will be lit, and after 5 minutes warm-up time the "IN PROCESS" light will go off. Assuming all the interlocks are cleared, the "HV READY" light will be lit. If any discrepancy is observed, the system specialist shall check the PLC program for the source of the interlocks.

5.3 HV Power Supplies Turn-On

Note:
If this is the first start-up after a longer (more than three days) shutdown, 24 hours warm-up period for both filaments of the PA and ignitron tube in the plate PS should be allowed.

If the "OFF" period was between 1 and 2 days 4 hours should be sufficient.

5.3.1 The main 13.8 kV circuit breaker shall be unlocked (Kirk keys) and racked into position.

5.3.2 Rack into position 13.8 kV CB's for anode PS.

5.3.3 After "HV READY" light on the REDY panel lites, push the "ON" button which will bring HV PS's "ON" in the proper self-interlocked sequence. All "HV ON" lights will be illuminated.

The cathode current meters next to the REDI PANELS will show the quiescent current (nominally 5 amps). If any discrepancy is observed, system specialist shall check the PLC program for the source of the interlocks.

5.3.4 After all the stations are turned "ON", switch the GLOBAL/STATION switch on the Global control panel (Rack # 5232) to the GLOBAL and the RFBLDG/MCR switch into the MCR position. The "MCR" push button on the REDY panel in the MCR will be illuminated.

5.3.5 At this point the C-A HLRF System is operational and ready for low level drive.

6. Documentation

None

7. References

7.1 C-A Technical Note # 371, "Controls for the C-A RF Upgrade System".

8. Attachments

None